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NUTTING TRUCK & CASTER
REMEDIAL ACTION & DESIGN
SPECS FOR PUMP-OUT WELL
INSTALLATION
BARR SEPTEMBER 1986

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MPCA, SOLID & HAZ.
WASTE DIVISION

SPECIFICATIONS FOR
PUMP-OUT WELL INSTALLATION

PREPARED FOR
NUTTING TRUCK AND CASTER
AT
FARIBAULT, MINNESOTA

SEPTEMBER, 1986

BARR ENGINEERING CO.

SPECIFICATIONS FOR
PUMP-OUT WELL INSTALLATION
FARIBAULT, MINNESOTA

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I hereby certify that this specification was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Suzanne Jiwani, P.E.

Date: _____ Reg. No. 14975

INSTRUCTIONS TO BIDDERS

1. RECEIVING OF TENDERS

- a. A proposal is requested for the installation of a pump-out well in accordance with the "Specifications for Pump-out Well Installation, Nutting, Faribault, Minnesota prepared by Barr Engineering Co., Consulting Engineers, Minneapolis, Minnesota.
- b. A firm proposal on forms prepared by the Engineer is requested by Suzanne Jiwani at Barr Engineering Co.
- c. The Proposal shall be submitted by 1:00 p.m., October 3, 1986, on the unaltered forms included with the Contract Documents. The original and three copies of each proposal shall be submitted:

PROPOSAL FOR PUMP-OUT WELL INSTALLATION

Nutting, Faribault
Barr Engineering Co.
7803 Glenroy Road
Minneapolis, Minnesota 55435
Attn: Suzanne Jiwani

- d. The Proposal shall not contain any recapitulations of the work to be done. Alternate proposals will not be considered unless called for. Oral proposals or modifications will not be considered.

2. PREPARATION OF TENDER

The Proposal shall be submitted on the forms included with these Specifications. The Proposal shall be signed by the bidder personally or, if a corporation, by a duly authorized officer; and the completed tender shall be without alteration, or erasure. Prices shall be in U.S. dollars and shall include all applicable taxes.

3. CONTRACT DOCUMENTS

Contract Documents shall consist of the following:

- Form of Contract
- Form of Proposal
- Addenda (if any)
- Technical Specifications
- Special Conditions
- Plan Drawings
- Instructions to Bidders
- General Conditions

In the case of a discrepancy in the documents, the order listed above shall be the order of precedence for the documents, that is, the governing document shall be the Contract followed by the Proposal and so forth.

4. INTERPRETATION OF DOCUMENTS

If the person contemplating submitting a proposal is in doubt as to the true meaning of any part of the Specifications or Contract Documents or finds discrepancies in or omissions from the Specifications, the bidder shall submit to the Engineer a written request for an interpretation or correction thereof. The person submitting the request shall be responsible for prompt delivery. Any interpretation or correction of the documents will be made only by addendum and will be mailed or delivered to each person receiving a set of the Contract Documents. Neither the Owner nor the Engineer will be responsible for any other explanation or interpretation of these Contract Documents.

5. ADDENDA

Any addenda issued during the time of the bidding or forming a part of the Contract Documents lent to the bidder for the preparation of the bidder's proposal shall be covered in the proposal and shall be made a part of the contract. Receipt of each addenda shall be acknowledged in the Proposal.

6. EXAMINATION OF CONTRACT DOCUMENTS AND VISITS TO SITE

Before submitting a proposal, the bidder shall carefully read the Specifications and other Contract documents and fully inform themselves as to all existing site conditions and limitations. The bidder shall not rely on statements or representations of officers or employees of the Owner or the Engineer with reference to the site or the conditions of the work unless these statements or representations are issued as addenda.

7. PERFORMANCE AND PAYMENT BOND

The bidder, simultaneously with the execution of the Contract, shall furnish a Performance and Payment Bond in the full amount of the Contract Price in a form and with sureties approved by the Engineer. The bond shall guarantee the work performed under this Contract for a period of one year after its completion by the Contractor.

8. ACCEPTANCE OR REJECTION OF TENDERS

The Engineer reserves the right to reject any or all proposals, to negotiate with the bidder in respect to revisions in the bidder's proposal, and to waive defects or informalities in any Proposal if the Engineer shall deem it in its and the Owner's best interest to do so.

9. AWARD OF CONTRACT

The Engineer will notify the bidder when the Proposal has been reviewed and accepted.

10. PAYMENT

The Contractor shall file a final estimate of work done and amount earned upon completion of the project. The estimate will be reviewed by the Engineer and submitted to the Owner.

11. COMMENCEMENT AND COMPLETION

Prompt performance of the Contract is desired. Commencement of the Work at the site is presently scheduled for no later than October 9, 1986. All work covered by this contract shall be completed by October 13, 1986.

FC-2

PROPOSAL

(Contractor's Name)

PUMP-OUT WELL INSTALLATION
Nutting Truck and Caster Co.
Faribault, Minnesota

The undersigned has examined the Specifications and other Contract Documents and is familiar with the Site and location of the project, the nature of the work, and the local conditions affecting the cost of the work and hereby proposes to furnish all labor, materials, and equipment required to complete the monitoring well installations in strict accordance with all requirements of the Contract Documents as follows:

<u>Payment Item</u>	<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Extension</u>
1.3	MOBILIZATION/DEMOBILIZATION	1	L.S.		
2.4	INSTALLATION OF PUMP-OUT WELL METHOD A				
2.4.1	Drilling	73	Ft.		
2.4.2	8-Inch Riser Pipe	43	Ft.		
2.4.3	Well Screen	1	L.S.		
2.4.4	Well Installation	1	L.S.		
2.4.5	Well Development	4	Hr.		
2.4.6	Well Protection	2	L.S.		
3.4	INSTALLATION OF PUMP-OUT WELL (METHOD B)				
3.4.1.1	14-Inch Casing Advancement	48	Ft.		
3.4.1.2	Borehole Advancement	25	Ft.		
3.4.2	8-Inch Riser Pipe	43	Ft.		
3.4.3	Well Screen	1	Ft.		
3.4.4	Well Installation	1	L.S.		
3.4.5	Well Development	4	Hr.		

3.4.6	Well Protection	2	L.S.	_____	_____
4.4	PUMP ASSEMBLY				
4.4.1	Labor and Equipment	1	L.S.	_____	_____
4.4.2	Pump and Water	1	L.S.	_____	_____
4.4.3	Drop Pipe and Wiring	1	L.S.	_____	_____
TOTAL EXTENSION					_____

The bidder understands that all quantities are to the best knowledge of the Engineer and may change based on field conditions.

Acknowledges receipt of addenda (initial after each addendum received):

1. _____
2. _____
3. _____

Name of Contractor's Authorized Representative:

Respectfully submitted,

Firm _____

By _____

Title _____

Address _____

Date _____

FORM OF CONTRACT

This Agreement, made on this ____ day of _____, 198_ by and between the Nutting Co., party of the first part, hereinafter called the Owner and _____, party of the second part, hereinafter called the Contractor.

WITNESSETH, that the Contractor and Owner, for the consideration hereinafter named, agree as follows:

The Contractor hereby agrees to furnish all of the materials and all of the equipment and labor necessary, and to perform all of the work described in the Specifications for the project entitled "Specifications for Pump-Out Well Installations, Faribault, Minnesota", all in accordance with the requirements and provisions of the Specifications and other Contract Documents dated September, 1986, prepared by Barr Engineering Co., Consulting Engineers.

Said Contract Documents, including the General Conditions, Special Conditions, Technical Specifications, addenda (if any), Instructions to Bidders, and the Proposal by the Contractor, are hereby specifically made a part of this Contract.

The Owner agrees to pay the Contractor for the work completed in accordance with the Specifications at the unit prices set forth in the Contractor's proposal, and payment shall be made within 60 days after Engineer's review has been completed by Barr Engineering Co. Payment will be made as prescribed in the Specifications and other Contract Documents.

IN WITNESS WHEREOF, the parties have executed this Agreement the day and year first above written.

OWNER
NUTTING CO.
BY _____

CONTRACTOR

BY _____

GENERAL CONDITIONS OF CONTRACT FOR ENGINEERING CONSTRUCTION

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SEC. 1—Definitions

(a) The Contract Documents shall consist of Advertisement for Bids or Notice to Contractors, Instructions to Bidders, Form of Bid or Proposal, the signed Agreement, the General and Special Conditions of Contract, the Drawings, and the Specifications, including all modifications thereof incorporated in any of the documents before the execution of Agreement.

(b) The Owner, the Contractor and the Engineer are those named as such in the Agreement. They are treated throughout the Contract Documents as if each were of singular number and masculine gender.

(c) Wherever in this Contract the word "Engineer" is used it shall be understood as referring to the Engineer of the Owner, acting personally or through assistants duly authorized in writing by the Engineer.

(d) Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or to an authorized representative of such individual, firm, or corporation, or if delivered at or sent by registered mail to the last business address known to him who gives the notice, with a copy sent to the central office of the Contractor.

(e) The term "Subcontractor" shall mean anyone (other than the Contractor) who furnishes at the site, under an Agreement with the Contractor, labor, or labor and materials, or labor and equip-

ment, but shall not include any person who furnishes services of a personal nature.

(f) Work shall mean the furnishing of all labor, materials, equipment, and other incidentals necessary or convenient to the successful completion of the Contract and the carrying out of all the duties and obligations imposed by the Contract.

(g) Extra work shall mean such additional labor, materials, equipment, and other incidentals as are required to complete the Contract for the purpose for which it was intended but was not shown on the Drawings or called for in the Specifications, or is desired by the Owner in addition to that work called for in the Drawings and Specifications.

(h) Dispute shall mean lack of agreement between any parties that have any obligations, duties, or responsibilities under the terms of the Contract, Drawings, or Specifications.

SEC. 2—Execution and Correlation of Documents

The Contract Documents shall be signed in duplicate by the Owner and the Contractor.

The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. In case of conflict between Drawings and Specifications, the Specifications shall govern. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

SEC. 3.—Design, Drawings and Instructions

It is agreed that the Owner will be responsible for the adequacy of design and sufficiency of the Drawings and Specifications. The Owner, through the Engineer, or the Engineer as the Owner's representative, shall furnish Drawings and Specifications which adequately represent the requirements of the work to be performed under the Contract. All such Drawings and instructions shall be consistent with the Contract Documents and shall be true developments thereof. In the case of lump-sum Contracts, Drawings and Specifications which adequately represent the work to be done shall be furnished prior to the time of entering into the Contract. The Engineer may, during the life of the Contract, and in accordance with Section 18, issue additional instructions by means of Drawings or other media necessary to illustrate changes in the work.

SEC. 4—Copies of Drawings Furnished

Unless otherwise provided in the Contract Documents, the Engineer will furnish to the Contractor, free of charge, all copies of Drawings and Specifications reasonably necessary for the execution of the work.

SEC. 5—Order of Completion

The Contractor shall submit, at such times as may be reasonably requested by the Engineer, schedules which shall show the order in which the Contractor proposes to carry on the work, with dates at which the Contractor will start the several parts of the work, and estimated dates of completion of the several parts.

SEC. 6—Ownership of Drawings

All Drawings, Specifications and copies thereof furnished by the Engineer shall not be reused on other work, and, with the exception of the signed Contract, sets are to be returned to him on request, at the completion of the work.

SEC. 7—Familiarity with Work

The Owner shall make known to all prospective bidders, prior to the receipt of bids, all information that he may have as to subsurface conditions in the vicinity of the work, topographical maps, or other information that might assist the bidder in properly evaluating the amount and character of the work that might be required. Such information is given,

however, as being the best factual information available to the Owner. The Contractor, by careful examination, shall satisfy himself as to the nature and location of the work, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this Contract.

SEC. 8—Changed Conditions

The Contractor shall promptly, and before such conditions are disturbed, notify the Owner in writing of: (1) Subsurface or latent physical conditions at the site differing materially from those indicated in this Contract; or (2) previously unknown physical or other conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract. The Engineer shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or the time required for, performance of this Contract, an equitable adjustment shall be made and the Contract modified in writing accordingly. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given notice as above required; provided that the Engineer may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final settlement of the Contract. If the parties fail to agree upon the adjustment to be made, the dispute shall be determined as provided in Section 39 hereof.

SEC. 9—Materials and Appliances

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new and both workmanship and materials shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

SEC. 10—Employees

The Contractor shall at all times enforce strict discipline and good order among his employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned to him.

Adequate sanitary facilities shall be provided by the Contractor.

SEC. 11—Royalties and Patents

The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof except that the Owner shall be responsible for all such loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the Owner has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

SEC. 12—Surveys

Unless otherwise specified, the Owner shall furnish all land surveys and establish all base lines for locating the principal component parts of the work together with a suitable number of bench marks adjacent to the work. From the information provided by the Owner, the Contractor shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines and elevations.

The Contractor shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

SEC. 13—Permits, Licenses and Regulations

Permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the Drawings and Specifications are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

SEC. 14—Protection of the Public and of Work and Property

The Contractor shall provide and maintain all necessary watchmen, barricades, warning lights and signs and take all necessary precautions for the protection and safety of the public. He shall continuously maintain adequate protection of all work from damage, and shall take all reasonable precautions to protect the Owner's property from injury or loss arising in connection with this Contract. He shall make good any damage, injury or loss to his work and to the property of the Owner resulting from lack of reasonable protective precautions, except such as may be due to errors in the Contract Documents, or caused by agents or employees of the Owner. He shall adequately protect adjacent private and public property, as provided by Law and the Contract Documents.

In an emergency affecting the safety of life, of the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Engineer, hereby permitted to act at his discretion to prevent such threatened loss or injury. He shall also so act, without appeal, if so authorized or instructed by the Engineer.

Any compensation claimed by the Contractor on account of emergency work, shall be determined by agreement or by arbitration.

SEC. 15—Inspection of Work

The Owner shall provide sufficient competent personnel, working under the supervision of a qualified engineer, for the inspection of the work while such work is in progress to ascertain that the completed work will comply in all respects with the standards and requirements set forth in the Specifications. Notwithstanding such inspection, the Contractor will be held responsible for the acceptability of the finished work.

The Engineer and his representatives shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access, and for inspection.

If the Specifications, the Engineer's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection, and if the inspection is by an authority other than the Engineer, of the date fixed for such inspection. Inspections by the Engi-

neer shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination and properly restored at the Contractor's expense, unless the Engineer has unreasonably delayed inspection.

Re-examination of any work may be ordered by the Engineer, and, if so ordered, the work must be uncovered by the Contractor. If such work is found to be in accordance with the Contract Documents, the Owner shall pay the cost of re-examination and replacement. If such work is not in accordance with the Contract Documents, the Contractor shall pay such cost.

SEC. 16—Superintendence

The Contractor shall keep on his work, during its progress, a competent superintendent and any necessary assistants. The superintendent shall represent the Contractor, and all directions given to him shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions shall be so confirmed on written request in each case. The Contractor shall give efficient superintendence to the work, using his best skill and attention.

SEC. 17—Discrepancies

If the Contractor, in the course of the work, finds any discrepancy between the Drawings and the physical conditions of the locality, or any errors or omissions in Drawings or in the layout as given by survey points and instructions, he shall immediately inform the Engineer, in writing, and the Engineer shall promptly verify the same. Any work done after such discovery, until authorized, will be done at the Contractor's risk.

SEC. 18—Changes in the Work

The Owner may make changes in the Drawings and Specifications or scheduling of the Contract within the general scope at any time by a written order. If such changes add to or deduct from the Contractor's cost of the work, the Contract shall be adjusted accordingly. All such work shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

In giving instructions, the Engineer shall have authority to make minor changes in the work not

involving extra cost, and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Engineer, and no claim for an addition to the Contract Sum shall be valid unless the additional work was so ordered.

The Contractor shall proceed with the work as changed and the value of any such extra work or change shall be determined as provided in the Agreement.

SEC. 19—Extension of Time

Extension of time stipulated in the Contract for completion of the work will be made when changes in the work occur, as provided in Section 18; when the work is suspended as provided in Section 23; and when the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, his Subcontractors or suppliers, and which were not the result of their fault or negligence. Extension of time for completion shall also be allowed for any delays in the progress of the work caused by any act (except as provided elsewhere in these General Conditions) or neglect of the Owner or of his employees or by other contractors employed by the Owner, or by any delay in the furnishing of Drawings and necessary information by the Engineer, or by any other cause which in the opinion of the Engineer entitled the Contractor to an extension of time, including but not restricted to, acts of the public enemy, acts of any government in either its sovereign or any applicable contractual capacity, acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, freight embargoes, unusually severe weather, or labor disputes.

The Contractor shall notify the Engineer promptly of any occurrence or conditions which in the Contractor's opinion entitle him to an extension of time. Such notice shall be in writing and shall be submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Engineer shall acknowledge receipt of the Contractor's notice within 5 days of its receipt. Failure to provide such notice shall constitute a waiver by the Contractor of any claim.

SEC. 20—Claims

If the Contractor claims that any instructions by Drawings or other media issued after the date of the

Contract involve extra cost under this Contract, he shall give the Engineer written notice thereof within ---- days after the receipt of such instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property, and the procedure shall then be as provided for changes in the work. No such claim shall be valid unless so made.

SEC. 21—Deductions for Uncorrected Work

If the Engineer deems it inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made therefor, unless the Contractor elects to correct the work.

SEC. 22—Correction of Work Before Final Payment

The Contractor shall promptly remove from the premises all materials and work condemned by the Engineer as failing to meet Contract requirements, whether incorporated in the work or not. The Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

If the Contractor does not take action to remove such condemned materials and work within 10 days after written notice, the Owner may remove them and may store the material at the expense of the Contractor. If the Contractor does not pay the expense of such removal and storage within ten days' time thereafter, the Owner may, upon ten days' written notice, sell such materials at auction or at private sale and shall pay to the Contractor any net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor.

SEC. 23—Suspension of Work

The Owner may at any time suspend the work, or any part thereof, by giving ---- days' notice to the Contractor in writing. The work shall be resumed by the Contractor within ten (10) days after the date fixed in the written notice from the Owner to the Contractor so to do. The Owner shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of such suspension.

If the work, or any part thereof, shall be stopped by notice in writing aforesaid, and if the Owner does not give notice in writing to the Contractor to resume work at a date within --30-- days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work so suspended and he will be entitled to the estimates and payments for all work done on the portions so abandoned, if any, plus ----% of the value of the work so abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

SEC. 24—The Owner's Right to Terminate Contract

If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed as a result of his insolvency, or if he should be guilty of a substantial violation of the Contract, then the Owner, upon the certificate of the Engineer that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor and his Surety seven days' written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools, equipment and other facilities installed on the work and paid for by the Owner, and finish the work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Contract price shall exceed the expense of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Engineer.

SEC. 25—Contractor's Right to Stop Work or Terminate Contract

If the work should be stopped under an order of any court, or other public authority, for a period of more than three months, through no act or fault of the Contractor or of anyone employed by him, or if the Engineer should fail to issue any estimate for payment within seven days after it is due, or if the Owner should fail to pay the Contractor within seven days of its maturity and presentation any sum certified by the Engineer or awarded by arbitrators, then the Contractor may, upon seven days' written

notice to the Owner and the Engineer, stop work or terminate this Contract and recover from the Owner payment for all work executed, plus any loss sustained upon any plant or materials plus reasonable profit and damages.

SEC. 26—Removal of Equipment

In the case of termination of this Contract before completion from any cause whatever, the Contractor, if notified to do so by the Owner, shall promptly remove any part or all of his equipment and supplies from the property of the Owner, failing which the Owner shall have the right to remove such equipment and supplies at the expense of the Contractor.

SEC. 27—Responsibility for Work

The Contractor assumes full responsibility for the work. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the work (except for any part covered by partial acceptance as set forth in Sec. 28). He agrees to make no claims against the Owner for damages to the work from any cause except negligence or willful acts of the Owner, acts of an Enemy, acts of war or as provided in Sec. 32.

SEC. 28—Partial Completion and Acceptance

If at any time prior to the issuance of the final certificate referred to in Section 42 hereinafter, any portion of the permanent construction has been satisfactorily completed, and if the Engineer determines that such portion of the permanent construction is not required for the operations of the Contractor but is needed by the Owner, the Engineer shall issue to the Contractor a certificate of partial completion, and thereupon or at any time thereafter the Owner may take over and use the portion of the permanent construction described in such certificate, and may exclude the Contractor therefrom.

The issuance of a certificate of partial completion shall not be construed to constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if he has failed to complete it in accordance with the terms of this Contract. The issuance of such a certificate shall not operate to release the Contractor or his sureties from any obligations under this Contract or the performance bond.

If such prior use increases the cost of or delays the work, the Contractor shall be entitled to extra

compensation, or extension of time, or both, as the Engineer may determine, unless otherwise provided.

SEC. 29—Payments Withheld Prior to Final Acceptance of Work

The Owner, as a result of subsequently discovered evidence, may withhold or nullify the whole or part of any payment certificate to such extent as may be necessary to protect himself from loss caused by:

- (a) Defective work not remedied.
- (b) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor.
- (c) Failure of the Contractor to make payments properly to Subcontractors or for material or labor.
- (d) Damage to another contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the Owner which will protect the Owner in the amount withheld, payment shall be made for amounts withheld, because of them.

No moneys may be withheld under (b) and (c) above if a payment bond is included in the Contract.

SEC. 30—Contractor's Insurance

The Contractor shall secure and maintain such insurance policies as will protect himself, his Subcontractors, and unless otherwise specified, the Owner, from claims for bodily injuries, death or property damage which may arise from operations under this Contract whether such operations be by himself or by any Subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required:

- (a) Statutory Workmen's Compensation.
- (b) Contractor's Public Liability and Property damage—

Bodily Injury:

each person \$ _____
each accident \$ _____

Property Damage:

each accident \$ _____
aggregate \$ _____

- (c) Automobile Public Liability and Property Damage—

Bodily Injury:

each person \$ _____
each accident \$ _____

Property Damage:

each accident \$ _____

All policies shall be for not less than the amounts set forth above or as stated in the Special Conditions. Other forms of insurance shall also be provided if called for by the Special Conditions.

Certificates and/or copies of policy of such insurance shall be filed with the Engineer, and shall be subject to his approval as to adequacy of protection, within the requirements of the Specifications. Said certificates of insurance shall contain a 10 days' written notice of cancellation in favor of the Owner.

SEC. 31—Surety Bonds

The Owner shall have the right, prior to the signing of the Contract, to require the Contractor to furnish bond covering the faithful performance of the Contract and the payment of all obligations arising thereunder, in such form as the Owner may prescribe in the bidding documents and executed by one or more financially responsible sureties. If such bond is required prior to the receipt of bids, the premium shall be paid by the Contractor; if subsequent thereto, it shall be paid by the Owner. The Owner may require additional bond if the Contract is increased appreciably.

SEC. 32—Owner's Insurance

The Owner shall secure and maintain insurance to 100% of the insurable value thereof against fire, earthquake, flood, and such other perils as he may deem necessary and shall name the Contractor and Subcontractors as additional insured. Such insurance shall be upon the entire work in the Contract and any structures attached or adjacent thereto. He shall also secure and maintain such insurance as will protect him and his officers, agents, servants, and employees from liability to others for damages due to death, bodily injury, or property damage resulting from the performance of the work. The limits of such insurance shall be equal to the amounts stated in subparagraphs (b) and (c), of Section 30.

SEC. 33—Assignment

Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due to him or to become due to him hereunder, except to a bank or financial institution acceptable to the Owner.

SEC. 34—Rights of Various Interests

Whenever work being done by the Owner's or by other contractor's forces is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Engineer, to secure the completion of the various portions of the work in general harmony.

SEC. 35—Separate Contracts

The Owner reserves the right to let other contracts in connection with this project. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

If the proper execution or results of any part of the Contractor's work depends upon the work of any other contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results.

SEC. 36—Subcontracts

The Contractor shall, as soon as practicable after signing of the Contract, notify the Engineer in writing of the names of Subcontractors proposed for the work.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his Subcontractors and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and the Owner.

SEC. 37—Engineer's Status

The Engineer shall perform technical inspection of the work. He has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract. He shall also have authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

SEC. 38—Engineer's Decisions

The Engineer shall, within a reasonable time after their presentation to him, make decisions in writing on all claims of the Owner or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents.

SEC. 39—Arbitration

Any controversy or claim arising out of or relating to this Contract, or the breach thereof which cannot be resolved by mutual agreement, shall be settled by arbitration in accordance with the Rules of the American Arbitration Association, and judgment upon the award rendered by the Arbitrator(s) may be entered in any Court having jurisdiction thereof.

SEC. 40—Lands for Work

The Owner shall provide as indicated on Drawing No. _____ and not later than the date when needed by the Contractor the lands upon which the work under this Contract is to be done, rights-of-way for access to same, and such other lands which are designated on the Drawings for the use of the Contractor. Such lands and rights-of-way shall be adequate for the performance of the Contract. Any delay in the furnishing of these lands by the Owner shall be deemed proper cause for an equitable adjustment in both Contract price and time of completion.

The Contractor shall provide at his own expense and without liability to the Owner any additional land and access thereto that may be required for temporary construction facilities, or for storage of materials.

SEC. 41—Cleaning Up

The Contractor shall remove at his own expense from the Owner's property and from all public and private property all temporary structures, rubbish and waste materials resulting from his operations. This requirement shall not apply to property used for permanent disposal of rubbish or waste materials in accordance with permission of such disposal granted to the Contractor by the Owner thereof.

SEC. 42—Acceptance and Final Payment

(a) Upon receipt of written notice that the work is substantially completed or ready for final inspection and acceptance, the Engineer will promptly make such inspection, and when he finds the work acceptable under the Contract and the Contract fully performed or substantially completed he shall promptly issue a certificate, over his own signature,

stating that the work required by this Contract has been completed or substantially completed and is accepted by him under the terms and conditions thereof, and the entire balance found to be due the Contractor, including the retained percentage, less a retention based on the Engineer's estimate of the fair value of the claims against the Contractor and the cost of completing the incomplete or unsatisfactory items of work with specified amounts for each incomplete or defective item of work, is due and payable. The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed in accordance with the Contract Documents as modified by any change orders agreed to by the parties so that the Owner can occupy the project or specified area of the project for the use for which it was intended.

(b) Before issuance of final payment, the Contractor, if required in the Special Conditions, shall certify in writing to the Engineer that all payrolls, material bills, and other indebtedness connected with the work have been paid, or otherwise satisfied, except that in case of disputed indebtedness or liens, if the Contract does not include a payment bond, the Contractor may submit in lieu of certification of payment a surety bond in the amount of the disputed indebtedness or liens, guaranteeing payment of all such disputed amounts, including all related costs and interest in connection with said disputed indebtedness or liens which the Owner may be compelled to pay upon adjudication.

(c) The making and acceptance of the final payment shall constitute a waiver of all claims by the Owner, other than those arising from unsettled liens, from faulty work appearing within the guarantee period provided in the Special Conditions, from the requirements of the Drawings and Specifications, or from manufacturer's guarantees. It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

(d) If after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Engineer so certifies, the Owner shall, upon certificate of the Engineer, and without terminating the Contract, make payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

(e) If the Owner fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of 6 per cent per annum commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the Contractor.

SPECIAL CONDITIONS

1.1 DEFINITIONS

The following definitions shall be in addition to the definitions contained in Section 1 of the General Conditions of the Contract.

- i. OWNER: The "Owner" for the purposes of this contract shall mean Superior Plating, Inc. and its duly authorized officials and representatives.
- j. CONTRACTOR: "Contractor" shall mean the person, firm, or corporation that is awarded the Contract for the performance of the work described in these Specifications.
- k. ENGINEER: "Engineer" shall mean Barr Engineering Co.
- l. SITE: "Site" shall mean the location of work as shown in the drawings and technical data section of these Contract Documents.
- m. FIELD MEMORANDUM: "Field Memorandum" shall mean a written statement issued by the Engineer which clarifies or interprets the Contract Documents in accordance with Section 37 and 38 or orders minor changes in the Work in accordance with Section 18 of the General Conditions of the Contract.
- n. CHANGE ORDER: "Change Order" shall mean a written amendment of the Contract Documents, signed by both parties describing an addition, deletion, or revision in the Work, an adjustment in the Contract Price or the Contract Time or a modification of the Contract Documents issued after execution of the Agreement.
- o. MODIFICATION: "Modification" shall mean (a) Change Order or (b) a Field Memorandum. A modification may only be issued after execution of the Agreement.

SPECIAL CONDITIONS

1.1 DEFINITIONS

The following definitions shall be in addition to the definitions contained in Section 1 of the General Conditions of the Contract.

- i. OWNER: The "Owner" for the purposes of this contract shall mean Nutting Truck and Caster Co. and its duly authorized officials and representatives.
- j. CONTRACTOR: "Contractor" shall mean the person, firm, or corporation that is awarded the Contract for the performance of the work described in these Specifications.
- k. ENGINEER: "Engineer" shall mean Barr Engineering Co.
- l. SITE: "Site" shall mean the location of work as shown in the drawings and technical data section of these Contract Documents.
- m. FIELD MEMORANDUM: "Field Memorandum" shall mean a written statement issued by the Engineer which clarifies or interprets the Contract Documents in accordance with Section 37 and 38 or orders minor changes in the Work in accordance with Section 18 of the General Conditions of the Contract.
- n. CHANGE ORDER: "Change Order" shall mean a written amendment of the Contract Documents, signed by both parties describing an addition, deletion, or revision in the Work, an adjustment in the Contract Price or the Contract Time or a modification of the Contract Documents issued after execution of the Agreement.
- o. MODIFICATION: "Modification" shall mean (a) Change Order or (b) a Field Memorandum. A modification may only be issued after execution of the Agreement.

1.2 COMPETENT WORKERS

Section 10 of the General Conditions shall be amended by adding: All work shall be performed under the direct supervision of or by an experienced driller. The pump-out well shall be installed by a licensed water well contractor or a registered monitoring well engineer. No

1.3 CODES AND PERMITS

The first two sentences of Section 13 of the General Conditions shall be amended to read: Permits and licenses necessary for the ^{or} prosecution of the work shall be secured and paid for by the Contractor.

1.4 CONTRACTOR'S INSURANCE

Section 30 of the General Conditions shall be replaced with the following: The Contractor shall secure and maintain the insurance required by the Owner that will protect the Contractor, the Contractor's Subcontractors, the Owner, and the Engineer from claims under the Worker's Compensation Act and from claims for bodily injury, death or property damage which may arise from the performance of the services under this agreement whether such performance be by the Contractor or by any subcontractor or anyone employed by them directly or indirectly in the amounts listed below:

	<u>Amount</u>
Worker's Compensation	As required for State of Minnesota
General Liability, Bodily Injury	\$250,000/\$500,000 (each person/each accident)
Property Damage	\$300,000/\$500,000
Automobile Liability/Bodily Injury	\$200,000/\$500,000

Automobile Property Damage	\$100,000
Excess Liability - Umbrella Form (Bodily Injury & Property Damage Combined)	\$1,000,000

Certificates and/or copies of policies of such insurance shall be filed with the Engineer and shall be subject to the Engineer's approval as to conformance with the requirements of the specification. Said certificates of insurance shall contain a 30-Day written notice of cancellation in favor of the Owner and Engineer.

1.5 OWNER'S INSURANCE

Section 32 of the General Conditions shall be deleted.

1.6 SUPPLEMENTAL SPECIFICATIONS

The work shall conform to the current standards and regulations of the Minnesota Department of Health (Chapter 4725).

1.7 SAFETY

In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions on the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

The Contractor shall provide safe access to all portions of the work for use by the Engineer in the performance of their review duties. Said access shall conform to all of the applicable requirements of the regulatory agency or agencies which claim jurisdiction over the safety of the project site.

1.8 CHEMICAL ANALYSIS DATA

Chemical analyses have been performed on the groundwater in the investigation area. The results of these analyses and measurements are available for review at the Engineer's office. The Engineer and Owner do not imply that these test results are representative, exhaustive or comprehensive. The Engineer and the Owner expressly disclaim any warranties as to the test data. 7.

Work performed on the site may bring the Contractor's personnel into contact with substances defined as "hazardous." The Contractor agrees that all the Contractor's personnel, their subcontractors and agents who work on the site or in contact with these substances will first be properly trained as to safety procedures and advised as to the potential risks in working around such substances. The Contractor further agrees to exercise due care in handling and working around these substances, including but not limited to, compliance with all applicable federal, state and local laws and regulations.

1.9 CHANGES IN QUANTITIES

The Engineer reserves the right to increase or decrease, without limit, any of the quantities of materials, equipment, and services in the Form of the Proposal without any changes in the unit price proposed by the Contractor.

1.10 UTILITIES

Prior to construction, the Contractor shall obtain field locations or other assistance as may be required to determine the existence and locations of gas, water, and other private and public utilities which

may be underground and overhead and which may be interfered with under this Contract.

The Contractor shall make such investigations as are necessary to determine the extent to which the existing structures may interfere with the work contemplated under this Contract.

The Contractor shall exercise extreme care in crossing or working adjacent to all utilities and shall be responsible to protect and maintain their operation during the time the work is in progress.

The Contractor shall restore, at the Contractor's expense, any utilities which are damaged or injured in any way by the Contractor's acts. All repair or restoration work to utilities damaged or injured by the Contractor shall be subject to approval by the Engineer.

1.11 SPECIAL REQUIREMENTS

Due to the nature of the investigation, the following precautions shall be taken by the Contractor:

1. The bailing, drilling, and water level measuring tools and devices shall be steam cleaned prior to mobilization.
2. No grease, oils or other materials containing any petroleum products shall be used on the down-hole equipment during the project.
3. Smoking or chewing of tobacco shall not occur within 40 feet of the work area.

1.12 LEGAL RELATIONS - INDEMNIFICATION

The Contractor and the Contractor's sureties shall save harmless Nutting Truck and Caster Co., Barr Engineering Co., and any and all of their officers, consultants, or employees from any claims and

demands or losses, damages, costs, charges, and expenses of every nature and description, whether direct or indirect, because of the performance of the Contractor's work under this Agreement, except due to negligence of Owner or Engineer, including all injuries to workers or persons other than workers and for all property damages. The Contractor shall indemnify the Owner and Engineer against any such loss or any liability of any nature, whether direct or indirect, and the Owner shall reserve the right to deduct from any money due to the Contractor the amount of any judgement or claim therefore.

1.13 ENGINEER'S STATUS DURING CONSTRUCTION

The first paragraph of Article 37 of the General Conditions of the Contract shall be deleted and the following substituted:

1.13.1 Owner's Representative

The Engineer will be the Owner's representative during the construction period. The Engineer will make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the Contract Documents. On the basis of these on-site observations as an experienced and qualified design professional, the Engineer will keep the Owner informed of the progress of the work.

1.13.2 Clarifications and Interpretations

The Engineer will issue with reasonable promptness, such written clarifications or interpretations of the Contract Documents (in the form of Drawings or otherwise) as may be determined necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

1.13.3 Decision on Disagreements

The Engineer will be the interpreter of the requirements of the Contract Documents and the evaluator to the performance thereunder. In the capacity as interpreter and evaluator, the Engineer will exercise best efforts to ensure faithful performance of both the Owner and Contractor. Claims, disputes and other matters relating to the execution and progress of the work or the interpretation of or performance under the Contract Documents shall be referred to the Engineer for decision, which the Engineer will render in writing within a reasonable time.

1.13.4 Limitations on Engineer's Responsibilities

Neither the Engineer's authority to act under these Special Conditions or elsewhere in the Contract Documents nor any decision made by the Engineer in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any subcontractor, any material manufacturer, fabricator, supplier or any of their agents or employees or any other person performing any of the work.

1.14 GUARANTEE PERIOD

The guarantee period referred to in Section 42, paragraph (c) of the General Conditions, concerning defective materials and workmanship, shall be 1 year after acceptance of the work.

1.15 AFFIRMATIVE ACTION POLICY/NONDISCRIMINATION

In accordance with Barr Engineering's Affirmative Action policy and Barr Engineering policies against discrimination, no person shall, on the grounds of race, color, creed, religion, sex, age, marital status, public assistance status, national origin, handicap or

disability, be excluded from full employment rights in, participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program, service or activity under the provisions of any and all applicable federal and state laws against discrimination. Prior to commencing the work to be performed under the Agreement, the Contractor shall submit a signed statement to the Engineer signifying that the Contractor fully intends to comply with the standards of Affirmative Action Equal Opportunity Employment and Anti-Discrimination as cited in the Civil Rights Act of 1964, as amended in 1972 by the Equal Employment Opportunity Act. During the performance of the work and services, hereunder, the Contractor, for himself, his assignees, and successors in interest agrees to comply with all federal, state and local nondiscrimination regulations.

SECTION 1
SPECIFICATIONS FOR MOBILIZATION/DEMOBILIZATION

1.1 SCOPE

The work covered by this section of the Specifications consists of but is not limited to furnishing all labor, equipment, and materials and performing all operations necessary to move personnel, equipment, supplies, obtaining all necessary permits required, and incidentals to the project site to perform all work that must be performed before beginning work on the various items for which payment is provided elsewhere in these Specifications and to furnish all bonds and any insurance obtained specifically for this project, all in accordance with the Specifications. In addition, the work covered by this section includes removing all equipment from the project site after it is no longer necessary, restoring the project site and furnishing field logs and letter report.

1.2 PERFORMANCE TASKS

1.2.1 Equipment

All drilling apparatus including drilling rigs, bailing, drilling, and water level measuring tools and devices shall be steam cleaned prior to mobilization and after completion of the work.

1.2.2 Pipe and Screen Preparation

All pipe, well screens, fittings, pumps, motors, drop pipe and cable shall be steam cleaned. They shall subsequently be covered and protected by a durable material (burlap or canvas) prior to being transported to the site.

1.2.3 Well Logs

The Contractor shall maintain boring logs of all relevant drilling, sampling, and well installation data. The Contractor shall collect samples of subsurface materials at 5-foot intervals and retain them in suitable labeled containers for inspection by the Engineer or his representative. The Contractor shall note the depth of contact with the St. Peter Formation to the nearest foot and collect a sample of the upper 2 feet of the St. Peter Formation. Information contained in the Contractor's logs shall include, but not be limited to:

1. boring or well number, location and date
2. type of equipment used
3. final depth of hole
4. sample number, sampling depths, descriptions and classifications
5. water levels
6. drilling conditions encountered
7. quantities of drilling fluid lost to the formation
8. description and dimension of well installations

Upon completion of each boring, the Contractor shall furnish a copy of the field log to the Engineer. Upon completion of the monitoring wells, the Contractor shall furnish a copy of the well log to the Engineer and to the appropriate regulatory agency as required by the Minnesota Water Well Construction Code. The Contractor shall also furnish a letter report to the Engineer describing the work completed. The Contractor shall furnish a copy of all permits obtained as part of the letter report. Payment will not be made to the Contractor until the Engineer is furnished with the Contractor's report.

1.3 MEASUREMENT AND PAYMENT

The Contractor will be paid for mobilization on the basis of a lump sum price. Said payment will constitute full compensation for labor, equipment and materials used in mobilization.

SECTION 2
SPECIFICATIONS FOR PUMP-OUT WELL INSTALLATION
METHOD A

2.1 SCOPE

The work covered in this section of these Specification includes the furnishing of all labor, equipment and material; and performing all operations necessary for a St. Peter pump-out well using mud rotary drilling methods.

2.1.1 Well Location

The location of the wells shown as PW-1 on Figure 1 will be staked by the Engineer. The Contractor shall not move the location more than 1 foot without approval of the Engineer.

2.1.2 Well Description

The wells will be an 8-inch nominal diameter screened well finished in the St. Peter Formation.

2.2 MATERIALS

2.2.1 Well Screen

The well screen shall be an 8-inch nominal diameter continuous slot stainless steel screen. The lower 3 feet of the screen shall be blank with a flat end plate. The screen shall be 30 feet long. Centering guides shall be attached to the screen at a minimum of two locations along the screen. It is not required that the centering guides be constructed of stainless steel.

2.2.2 Riser Pipe

All riser pipe shall be new 8-inch nominal diameter steel pipe conforming to Section 4725.3400 of the Minnesota Department of Health Water Well Construction Code. The pipe may have either threaded or welded joints.

2.2.3 Potable Water

Potable water shall be as defined by the Minnesota Department of Health (4725.0100, Subp. 35).

2.2.4 Sand Pack

Sand pack shall consist of a uniform graded, clean sand with at least 90 percent by weight passing the No. 10 U.S. Standard sieve and no more than 10 percent by weight passing the No. 40 U.S. Standard sieve.

2.2.5 Portland Cement

Portland cement (Type I) shall meet the requirements of ASTM C 150.

2.2.6 Neat Cement Grout

The neat cement grout shall consist of a mixture of 1 bag (94 pounds) Portland cement (Type I) to not more than 6 gallons of potable water. Bentonite up to 2 percent by weight of mixture may be added. No other admixtures will be allowed.

2.2.7 Drilling Mud

Drilling mud shall be potable water as defined by the Minnesota Health Department (Chapter 4725) and Revert as produced by Johnson UOP.

2.2.8 Protective Posts

Protective posts shall be 4-inch steel pipe (Schedule 40), 6 feet in length.

2.2.9 Concrete

Concrete shall consist of a mixture of one part potable water, two parts Portland cement, four parts clean sand, and eight parts washed gravel by weight.

2.2.10 Locks

Locks shall be provided by the Engineer.

2.3 PERFORMANCE

2.3.1 Borehole Advancement and Well Installation

The Contractor shall advance a 14-inch nominal diameter borehole using mud rotary drilling methods to a depth of 73 feet from the ground surface.

2.3.2 Pump-out Well Installation

The riser pipe shall be of such a length as to extend approximately 3 feet above the ground surface. The well screen and riser pipe shall be assembled and placed so that the bottom of the screen is 73 feet below the ground surface. A sand pack shall be placed in the annulus between the well

assembly and the borehole in the interval from the bottom of the screen to 2 feet above the top of the screen.

Neat cement grout shall be placed in the interval from the top of the sand pack to a depth 3 feet below the ground surface. The grout shall be placed through a tremie pipe. After 6 inches of grout have been placed in the borehole, the discharge point of the tremie pipe shall be maintained at 3 inches or more below the grout surface. Concrete shall be placed in the upper 3 feet of the annulus of the borehole and the monitoring well assembly.

2.3.3 Well Protection

The pump-out well and W-13, an existing monitoring well, shall be protected by three protective posts located in accordance with Minnesota Department of Health regulations. The Contractor shall place the posts in a 12-inch diameter borehole 2 feet deep and fill the annulus between the borehole and the post with concrete.

2.3.4 Well Development

The well shall be developed to ensure a good hydrostatic connection with the aquifer and to remove any drilling fluid used. The Contractor shall provide suitable pipe and fittings to allow discharge of pumped waters to the sanitary sewer. The methods used in development include jetting and may include airlift pumping, submersible pumping or bailing. The method of development shall be reviewed by the Engineer prior to being used. Development shall proceed until the yield and turbidity of the well are satisfactory to the Engineer's field representative.

2.4 MEASUREMENT AND PAYMENT

Payment for all the materials, equipment, labor, and power necessary to construct the wells and otherwise satisfy the contract will be made through the various bid items included in the proposal. Payment will be made only for those items approved for construction and actually constructed and accepted.

2.4.1 Drilling

Depth of drilling will be measured from the surface of the ground to the bottom of the borehole. The Contractor will be paid at the unit price bid for depth of drilling. Said payment will constitute full compensation for labor, materials and equipment.

2.4.2 8-Inch Riser Pipe

The riser pipe shall be measured to the nearest foot. The Contractor will be paid the unit price bid per foot for the riser pipe. Said payment will constitute full compensation for furnishing riser pipe.

2.4.3 Well Screen

The Contractor will be paid the unit price bid for the well screen. Said payment will constitute full compensation for labor, equipment and materials used in the furnishing, and preparing the well screen. Centering guides will be considered incidental to the work.

2.4.4 Well Installation

Labor and equipment for preparation and installation of the well screen, riser pipe, and sand filter pack will be paid at the unit price bid per well installed. Said payment will

constitute full compensation for labor and equipment used in installation.

2.4.5 Well Development

Well development (pumping or bailing) will be measured in hours to the nearest 0.1 hour that water is removed from the well. The Contractor will be paid at the unit price bid for the number of hours of well development. Said payment will constitute full compensation for labor, equipment and materials.

2.4.6 Well Protection

The Contractor will be paid at the unit price bid for each well protected. Said payment will constitute full compensation for labor, materials and equipment.

SECTION 3
SPECIFICATIONS FOR PUMP-OUT WELL INSTALLATION
METHOD B

3.1 SCOPE

The work covered by this section of these Specifications includes the furnishing of all labor, equipment, and materials; and performing all operations necessary for the construction and development of a St. Peter Formation pump-out well using cable tool drilling methods.

3.1.1 Well Location

The location of the pump-out well shown on Figure 1 will be staked by the Engineer. The Contractor shall not move the locations more than 1 foot without approval of the Engineer.

3.1.2 Well Description

The well will be 8-inch nominal diameter screened well finished in the St. Peter Formation.

3.2 MATERIALS

3.2.1 Well Screen

Well screen shall be as described in 2.2.1.

3.2.2 Pipe

The riser pipe shall be as described in 2.2.2. The casing shall be 14-inch nominal diameter steel pipe conforming to Section 4725.3400 of the Minnesota Department of Health Water Well Construction Code. The casing shall have welded joints.

3.2.3 Potable Water

Potable water shall be as described in 2.2.3.

3.2.4 Sand Pack

Sand pack shall be as described in 2.2.4.

3.2.5 Portland Cement

Portland cement shall be as described in 2.2.5.

3.2.6 Neat Cement Grout

Neat cement grout shall be as described in 2.2.6.

3.2.7 Drilling Mud

Drilling mud shall be as described in 2.2.7.

3.2.8 Protective Posts

Protective posts shall be as described in 2.2.8.

3.2.9 Concrete

Concrete shall be as described in 2.2.8.

3.2.10 Locks

Locks shall be provided by the Engineer.

3.3 WORK METHODS

3.3.1 Borehole Advancement

The contractor shall advance a 14-inch nominal diameter steel casing equipped with a drive shoe through the glacial drift to a depth 48 ft. below ground surface. A 14-inch borehole shall then be advanced to a depth of 73 feet below grade, approximately 5 feet above the top of the Prairie du Chien, by drilling open hole.

3.3.2 Pump-Out Well Installation

The riser pipe and well screen shall be assembled and placed as described in 2.3.2.

3.3.3 Well Protection

Well protection shall be as described in 2.3.3.

3.3.4 Well Development

Well development shall be as described in 2.3.4

3.4 MEASUREMENT AND PAYMENT

Payment for all the materials, equipment, and labor necessary to construct the wells and otherwise satisfy the contract shall be made through the various bid items included in the proposal. Payment will be made only for those items approved for construction and actually constructed and accepted.

3.4.1 Borehole Advancement

3.4.1.1 14-Inch Casing Advancement

Depth of the advancement of the 14-inch diameter casing will be measured from the surface of the ground to the bottom of the drive shoe. The

Contractor will be paid at the unit price bid for the depth of advanced casing. Said payment will constitute full compensation for labor, materials, and equipment.

3.4.1.2 Borehole Advancement

Depth of the 14-inch diameter borehole will be measured from the bottom of the 14-inch diameter drive shoe to the maximum penetration of the borehole measured from the ground surface. The Contractor will be paid at the unit price bid for borehole advancement. Said payment will constitute full compensation for labor, materials, and equipment.

3.4.2 8-Inch Riser Pipe

Payment for 8-inch riser pipe will be as described in 2.4.2.

3.4.3 Well Screen

Payment for well screen will be as described in 2.4.3.

3.4.4 Well Installation

Payment for well installation will be as described in 2.4.4.

3.4.5 Well Development

Payment for well development will be as described in 2.4.5.

3.4.6 Well Protection

Payment for well protection will be as described in 2.4.6.

SECTION 4
SPECIFICATIONS FOR THE PUMPS

4.1 SCOPE

The work covered by this section of these Specifications includes the furnishing of all labor, equipment and materials and performing all operations necessary to install pump, motor and piping in one pump-out well.

4.2 MATERIALS

4.2.1 Pump

The pump shall be Grunfos SP 16-2 pump or equivalent with flow inducer.

4.2.2. Motor

The motor shall be a Franklin 2-wire or equivalent, 230 volts, three phase, 2 HP motor.

4.2.3 Drop Pipe and Wire

The drop pipe shall be 3-inch black pipe. The wire shall be compatible with the pump and motor.

4.3 PERFORMANCE

The Contractor shall install a pump, motor, drop pipe, and wiring in each of the pump-out wells. The pumps shall be placed at the bottom of the wells.

4.4 MEASUREMENT AND PAYMENT

4.4.1 Labor and Equipment

The labor and equipment to install the pump and motor will be measured as a lump sum. The Contractor will be paid a lump

sum for labor, equipment, and materials to prepare and install the pump and motor.

4.4.2 Pump and Motor

The furnishing of the pump and motor will be measured as a lump sum. The Contractor will be paid a lump sum for labor, equipment, and materials to furnish the pump for each well. Said payment will constitute full compensation for labor, equipment and materials for furnishing the pump and motor.

4.4.3 Drop Pipe and Wiring

The length of drop pipe and wiring will be measured from 3 feet above the surface of the ground to the top of the pump. The Contractor will be paid at the unit price bid for the length of drop pipe and wire. Said payment will constitute full compensation for labor, equipment, and materials for furnishing and installing drop pipe and wiring.

